

NEW SPECIES AND VARIETIES OF BOMBYCES.

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In advance of the revisionary work which we are preparing on the families of Lepidoptera classed as the Bombyces, we present the following descriptions of new forms. We do so to avoid as far as possible the production of synonyms.

Family **Lasiocampidæ**.

Genus **Hypopacha** n. gen.

Head rather small, sunken, eyes naked, palpi obscured by vestiture, which is hairy; antennæ moderately bipectinate, shorter in ♀, thorax moderate, abdomen square, hardly exc. eding hind wings.

Primaries trigonate, 1.4 times as long as broad (less than $1\frac{1}{2}$ times); costa straight nearly to apex, outer margin long, convex, gently rounding to internal angle.

Secondaries ovate, the costa concave, exterior margin very convex. Venation; fore wings: vein 1 close to margin; a sub-median fold; median vein 4 branched, 2 given off near base; 3 from median beyond middle of cell; 4 and 5 together from lower angle; cell closed by a weak concave vein; 6-8 on a stalk from apex of cell; 9-10 on a very long stalk from sub-costal just before end of cell, the furcation almost at apex of wing; 11 from sub-costal on cell about half the length of cell from base; 12 free.

Hind wings: two internal veins; 4 branched median, 2 from near middle of cell, 3 before end of cell, 4-5 on a stalk from lower angle of cell; cell closed by an angulated vein; 7 from sub-costal before end of cell; 8 from sub-costal about $\frac{1}{3}$ length of cell from base; a long spur from base of sub-costal into enlargement of costa at base.

Type **Cnethocampa grisea** *Neum.*

This genus is closely related to the European *Trichiura crategi* Linn., but differs from it in venation. Its nearest American ally is *Artace*, from which it differs in antennal structure.

Genus **Clisiocampa** *Curt.*

C. disstria *Hübner*.

The typical form is of a yellowish brown color, with two transverse brown bands on fore wings.

var. sylvatica *Harr.*

This name may be retained for the form in which the primaries are crossed by a deep brown band, filling up the space between the transverse lines.

var. thoracicoides n. var.

In this form the transverse lines are very obscure, the whole wing nearly uniform in color, densely irrorate with brown scales. Types 2 ♂♂ in Mr. Dyar's collection.

C. erosa *Stretch*.

The typical form is marked like *C. distria*.

var. sylvaticoides n. var.

Closely resembling the *var. sylvatica*. The primaries are dark in their shade of brown, the space between the transverse lines filled in with dark brown, but not always completely. Outside this band the ground color is paler for a short space.

Types 4 ♂♂ in Mr. Dyar's collection.

var. thoracica *Stretch*.

As proved by an examination of the type and by Professor Rivers' description of the larva, this name must be referred as a variety.

var. perversa n. var.

In this form, the space between the base of primaries and inner transverse line, the terminal space from outer band to margin and the outer half of secondaries is shaded over with brown of the color of the transverse lines, leaving the middle of primaries and base of secondaries of the normal yellowish color.

Type 1 ♀ in Mr. Dyar's collection.

C. incurva *Hy. Edw.*

♂ Chocolate brown scales (Ridgway's Nomenclature of colors Plate III, Fig. 13) heavily irrorate over a pale cream buff ground (Ridg. V, Fig. 11), almost entirely obscuring the surface, except in two arcuate pale transverse bands, dentate toward each other and defined by darker brown; but away from each other fading into the general shade. A faint trace of paler median band on secondaries.

♀ Darker in color than ♂, but of the same tint. The color is entirely chocolate brown, the lines pale cream buff, undulate, not bordered by a distinctly darker shade.

var. constrictina n. var.

♂ Fore wings pale cream buff, slightly dusted with chocolate scales, much as in *constricta*. The lines are dark chocolate brown, consisting of the borders of the pale lines of the normal form, diffused towards each other, obsolete connected over the median venules. Secondaries as in the typical form.

Type 1 ♂ in Mr. Neumoegen's collection.

C. fragilis *Stretch*.

In the typical ♂, the color is chocolate brown with two pale transverse bands on primaries.

var. lutescens n. var.

In one specimen, the light yellowish color of the inner transverse band occupies the whole basal space, while the outer band is broad, diffusely shaded outwardly. There is also a broad yellowish median band on secondaries. In the other specimen, the yellowish color is still more extensive. It covers the whole fore wing except two parallel brown bands which are connected by straight brown lines on the veins and a diffuse brown shade on the costal region. The pale band on secondaries extends farther toward outer margin and is more diffused.

Types 2 ♂♂ in Mr. Dyar's collection, received from Mr. C. A. Wiley, of Miles City, Montana.

var. perlutea n. var.

Fore wings entirely light yellowish (Ridgway's Nomenclature of Colors Plate V, Fig. 13—a little paler than the figure) no trace of lines, a few brown scales before margin, forming a darker cloud, but faint. Marks on the fringe obscured, but seen with lens to be nearly normal. Hind wings pale brown, a good deal paler than normal *fragilis*, but same color, the broad diffuse pale band present, but not contrasting on account of the paleness of wing. Body parts nearly as pale as fore wings, a little darker on thorax.

Type 1 ♂ in Mr. Neumoegen's collection, received from Mr. D. Bruce, from Colorado.

Family **Zeuzeridæ**.

Vein 1 a of primaries present, both wings with furcate false discal veins.

Vein 8 of secondaries united to the subcostal by a cross vein.

♂ antennæ pectinated basal half **Zeuzera**.

♂ antennæ pectinated to tip.

Sexes approximate in size **Trypanus**.

♂ smaller than ♀ and differently marked **Prionoxystus**.

Vein 8 of secondaries free from sub-costal from base.

Vein 11 of primaries from discal cell **Hypopta**.

Vein 11 of primaries from accessory cell **Cossula**.

Genus **Trypanus** *Ramb.* (*Cossus* *Fab.*).

T. perplexus n. sp.

Head, thorax, primaries and fringes silky gray, the latter with black shades at base; central part of thorax dusted with russet grains. Black collar line and

black edges to patagiæ. Black maculations of primaries minutely reticulate. Two prominent transverse lines, the inner line forking between vein 1 and inner margin, the outer line having two prominent forks, the upper one dividing between first sub-costal vein and costa, thus enclosing a sub-triangular space between centre of costa and apex; the lower one, of smaller dimensions, forking at angle.

Secondaries of a uniform light grayish, silken gloss. Abdomen of darker gray, especially near basal part, hairy, of silken gloss, and slender. Palpi and legs of the same color. Below as above, the reticulations of primaries and the transverse lines fainter, with whitish fringes along inner margin. Expanse of wings, 33 mm. Length of body 13 mm.

Habitat, Colorado. Type 1 ♂ in the collection of Mr. Neumoegen, received from Mr. D. Bruce, from Colorado. Another specimen, exactly like this one, was found by him at electric light, but in poor condition. We see no course but to describe this form. Walker described a ♀, as *C. populi* from Hudson's Bay. The description answers nearly in every point to *C. brucei*, French, but before Walker's type has been examined, nothing definite can be said about it. Perhaps *T. perplexus* may prove to be the ♂ of *C. populi*: but we leave this matter for future investigation.

Genus *Hypopta* Hübn.

H. edwardi n. sp.

Head and body white, grizzled with black scales; antennæ white on the shaft, the pectinations blackish. Fore wings white, irrorate with black scales, heaviest over the apical portion and part of wing below median vein and vein 2, less thick over the cell, where the white ground predominates. A faint, brownish, diffuse coloration in the interspaces between veins 2-5 at their bases. Fringe white, with a narrow brown terminal line. Hind wings brownish gray, from the heavy sprinkling of dark scales. Fringe as on fore wings. Below, the fore wings are blackish, shaded; the hind wings largely white. Expanse, 40 mm.

Type 1 ♂ in Mr. Neumoegen's collection.

H. ethela n. sp.

Head and body gray, black and white hairs mixed. Antennæ whitish on the shaft, pectinations blackish. Primaries blackish gray, the ground color white, but heavily irrorate throughout with black scales, most heavily at apex and outer margin. At the end of cell a small white spot, from which the irrorations are absent, and just below it an elongated black spot. A terminal black line. Fringe white, spotted with black at termination of nervules. Secondaries nearly black, especially centrally. Costal area much paler, as is also abdominal margin. Fringe spotted as on primaries. Both wings below blackish gray, paler along margins. Fringes spotted as above. Expanse, 28 mm.

Type 1 ♂ in Mr. Neumoegen's collection.

H. cornelia n. sp.

Body parts sordid white, shaft of antennæ white, pectinations blackish. Fore wings white, with a faint brownish tinge which becomes marked beyond the cell, predominantly in two obscure, parallel transverse lines, the outer of which is

subterminal; along the inner margin, occupying nearly all the space enclosed by vein 1a, except at base, is a patch composed of mixed brownish-black and pale ocherous scales. This patch is obscurely divided in a strigose manner by the white ground color. Fringes white, very faintly spotted with ocherous brown. Secondaries light gray, whitish at abdominal margin and fringe, showing faintly the markings of under side. Below, both wings are blackish gray, fading to white along the internal margin, but thickly covered with a series of little, blackish strigose patches, arranged indistinctly and without great regularity in about twelve transverse bands. Expanse, 27 mm.

Type 1 ♂ in Mr. Neumoegen's collection.

All three species from Colorado, collected by Mr. D. Bruce.

We take pleasure in dedicating these insects to Prof. Edward T. Owen, and to those whose memory is dear to him.

Synopsis of species.

Wings nearly uniform white, pectinations of antennæ brown—**manfredi.**

Wings more or less mottled or irrorate with dark shades—pectinations of antennæ blackish.

With black marks at end of median vein.

Black marks extending from origin of vein 2 to cross vein or further, fringes of secondaries almost entirely white **bertholdi.**

Black marks confined to origin of veins 3 and 4; fringes of secondaries distinctly black-spotted . . . **ethela.**

Without any black discal marks.

Wings largely marbled with pale brown, the white ground reduced to a series of confluent spots . . . **henrici.**

A brown spot only on middle of interior margin; size smaller **cornelia.**

Without any brown markings on fore wings; white, irrorate with black scales; size large . . . **edwardi.**

Genus **Cossula** Bailey.

We believe the following synonymy to be correct, though no structural characters are given by Dr. Strecker, and we have been obliged to rely on his description of the maculation.

C. basalis Walker.

1856—*Cossus basalis* WALKER, Cat. Brit. Mus. pt. VIII, 1523.

1891—*Cossula basalis* HY. EDWARDS, Ent. News, Vol. II, p. 72.

1892—*Cossula basalis* SMITH, Can. Ent. Vol. XXIV, p. 136.

Cymatophora magnifica STRECKER.

1876—*C. magnifica* STRECKER, Proc. Acad. Nat. Sc. Phil., p. 151.

1891—*Bombycia magnifica* SMITH, List Lep., No. 1467.

Cossula magnifica BAILEY.

1882—*C. magnifica* BAILEY, Papilio, Vol. II, p. 93.

1890—*C. magnifica* PACKARD, 5th Rep. U. S. Ent. Com., p. 59, pl. II figs. 1-3.

1891—*C. magnifica* HY. EDWARDS, Ent. News, Vol. II, p. 72. (*pr. syn. slossonii*).

Inguromorpha slossonii HY. EDWARDS.

1888—*I. slossonii* HY. EDWARDS, Ent. Amer. Vol. II, p. 183.

1891—*I. slossonii* HY. EDWARDS, Ent. News, Vol. II, 72, *pr. syn.*

Family **Saturniidae**.

Genus **Thauma** Hy. Edw.

Antennæ doubly bipectinated, the upper branch the shorter ; of ♀ serrate.

Primaries : Vein 1 free ; median vein three branched, cell closed, 5 from below apex of cell, 6-8 on a stalk from apex of cell ; 9-10 absent ; 11 from subcostal vein on the cell ; 12 from base of wing. Secondaries : One internal vein, median three branched, cell closed, 5 from cross vein very near apex of cell, 6-7 on a stalk from apex of cell, 8 from base of wing, arcuate, remote from subcostal vein,

This genus is related to *Ormiscodes*, Blanch, but differs in detail of venation.

In *Ormiscodes cinnamomea*, the type of the genus, vein 7 of primaries arises from a stalk ; otherwise the venation is practically the same.

The following is the synonymy of the North American species.

T. socialis Feisth.

1839—*Bombyx socialis* FEISTH, Mag. Zool. pl. 20 fig. 1.

1853—*Dirphia angulifera* WALKER, Cat. Brit. Mus. pt. VI, p. 1363.

1874—*Thauma ribis* HY. EDWARDS, Proc. Cal. Ac. Sc. Vol. V, p. 265.

Mr. Neumoegen has a ♂ specimen from Chili, and we have examined a ♀ specimen belonging to Mr. J. Doll, also from Chili. The latter has been kindly loaned to us by Mr. Doll and carefully compared with the typical specimen in the Edwards collection, now in the American Museum of Natural History.

Family **Notodontidae**.

Nadata gibbosa Sm. & Abb.

var. rubripennis n. var.

A form in which the ordinary buff shades of the fore wings are turned to red. The color is marked, and comes out most distinctly in the cell next to the white dots where it is "orpiment orange" (Ridg. pl. vi. fig. 1) or a very little duller in shade. The lines are reddish-brown, the dots large, white, rounded ; the apical space gray, exactly as in *gibbosa*, not red shaded, but contrasting

with the dark wing. Hind wings only very slightly reddish; hardly so at all.

Types δ ♀ in Mr. Neumoegen's collection. Caught by Mr. Bruce in Western Colorado.

Notodonta stragula Grote.

var. manitou n. var.

As in *stragula* in markings. The thoracic parts are a little paler. Fore wings pale ochre yellow except along costa, the costal half of median space, and the narrow terminal space, where they are gray with the tint of *stragula*, but paler. All the brown markings are as in *stragula* and the same color. The difference lies in the pale color of the region about internal margin, base, and sub-terminal line, which in *stragula* is only partly ochraceous being usually largely deep brown. Here the brown color is almost entirely confined to the marks, the ground color being pale ochraceous, and encroaching on the gray parts of the wing.

Type 1 ♂ in Mr. Neumoegen's collection, collected by Mr. Bruce in Denver, Colorado.

A NEW LITHOSID GENUS.

BY B. NEUMOEGEN, NEW YORK.

Bruceia, nov. gen. Head small, eyes large. Palpi short and thin. Thorax moderate. Body long and slender, with slight anal tuft extending somewhat beyond wing. Antennae $\bar{\sigma}$ setose, nearly sub-serrate, σ simple. Primaries well drawn out, about $2\frac{1}{2}$ times as long as broad, slightly rounded at apices. Angle produced; inner margin somewhat concave at centre; 12 veins. Vein 1 free from base, slightly sinuate; vein 2 arises from beyond centre of median; vein 3 from lower angle of cell; 4 and 5 nearly contiguous at origin; cell closed; discal vein angulate inwards; vein 6 arises from cross-vein, a little below apex of cell; veins, 7, 8 and 9 from a stalk at apex; veins 10 and 11 arise independently from subcostal, 11 beyond centre of cell, 10 being intermediate; vein 12 free from base.

Secondaries nearly as broad as long, well rounded at anal angle. Two internal veins; veins 2, 3, 4 and 5 identical in position with those of primaries; 6 and 7 emanating from a stalk at upper angle of cell; vein 8 springs from a little before centre of subcostal. Legs long and slender; two pair of tibial spurs.

A near relative of *Hypoprepia* Hb., and probably *Hyaloscotes* Butl. I take great pleasure in dedicating this genus to Mr. D. Bruce, whose successful entomological work in Colorado for the last decade deserves general recognition.



Venation of *B. pulverina*, enlarged.